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1310.01 General

Contour grading is an important element in achieving operational, environmental and visual functions.

Contour grading plans are required when profiles and cross sections do not provide a complete picture. Examples include stream channel changes, interchanges, redirection berms, noise abatement berms, wetland mitigation sites, and detention/retention ponds. Contour grading plans show the subtle changes in grading that occur between cross sections and can allow for finer grading so that the constructed earthform blends smoothly into the surrounding landscape. While engineered slopes define grades to meet engineering requirements, contours can be used to define a finished grade that will blend the facility into the surrounding landscape and meet the requirements of the *Roadside Classification Plan*.

A detention/retention pond can be designed and constructed to appear as if it were naturally formed. Contour grading plans facilitate this kind of earth sculpting. In addition, contour grading plans can be critical to wetland mitigation sites where inaccurate grading can leave a proposed mitigation site without access to a water source.

See the *Roadside Manual* for more detailed information on grading for roadsides.

1310.02 References

Roadside Manual, M 25-30, WSDOT

Roadside Classification Plan, M 25-31, WSDOT

Standard Plans for Road, Bridge and Municipal Construction, M 21-01, WSDOT

1310.03 Procedures

See Chapter 330 for design approval levels.

When contour grading plans are needed, consult the region's or Olympia Service Center (OSC) Design Landscape Architect.

Submit plans for contour grading on structures (such as lids) to the OSC Bridge and Structures Office for approval.

1310.04 Recommendations

Consider the following factors when developing a contour grading plan:

- Balancing of cut and fill within project limits.
- Preservation of existing desirable vegetation.
- Preservation of existing topsoil.
- Vehicle recovery areas.
- Sight distance.
- Pedestrian safety and security.
- Impacts to groundwater and surface water both on and off the right of way, including wetlands.
- Slope angle and potential soil erosion.
- Slope rounding.
- Drainage (including detention/retention functions).
- Surrounding landscape.
- Visual factors (a form that blends with the adjacent landforms).
- Grading construction cost
- Slopes steeper than 1 vertical: 2 horizontal may be difficult to stabilize and establish vegetation on.
- Soil properties and angle of repose.

- Maintenance access to drainage and traffic operational features.
- Maintenance requirements for slopes (slopes steeper than 1 vertical:3 horizontal cannot be mowed).
- Access along fence line or noise walls, if necessary.
- Maximum allowable cut/fill next to a structure (minimum cover over a footing, maximum fill behind a wall or next to a pier).

Use a known stationing point or baseline as a starting point in drawing contours.

Recommended contour interval:

- 1 to 1.5 meter for highway plan drawings.
- 0.5meter contour intervals for redirection berms, and pedestrian related facilities.
- 0.20 to 0.50 meter contour intervals for wetland mitigation sites, stream mitigation sites, and wetland bank sites. Include two or more cross-sections done at a vertical exaggeration sufficient to communicate the design intent.

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